

Environmental awareness and learning

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<http://www.everyaware.eu/>

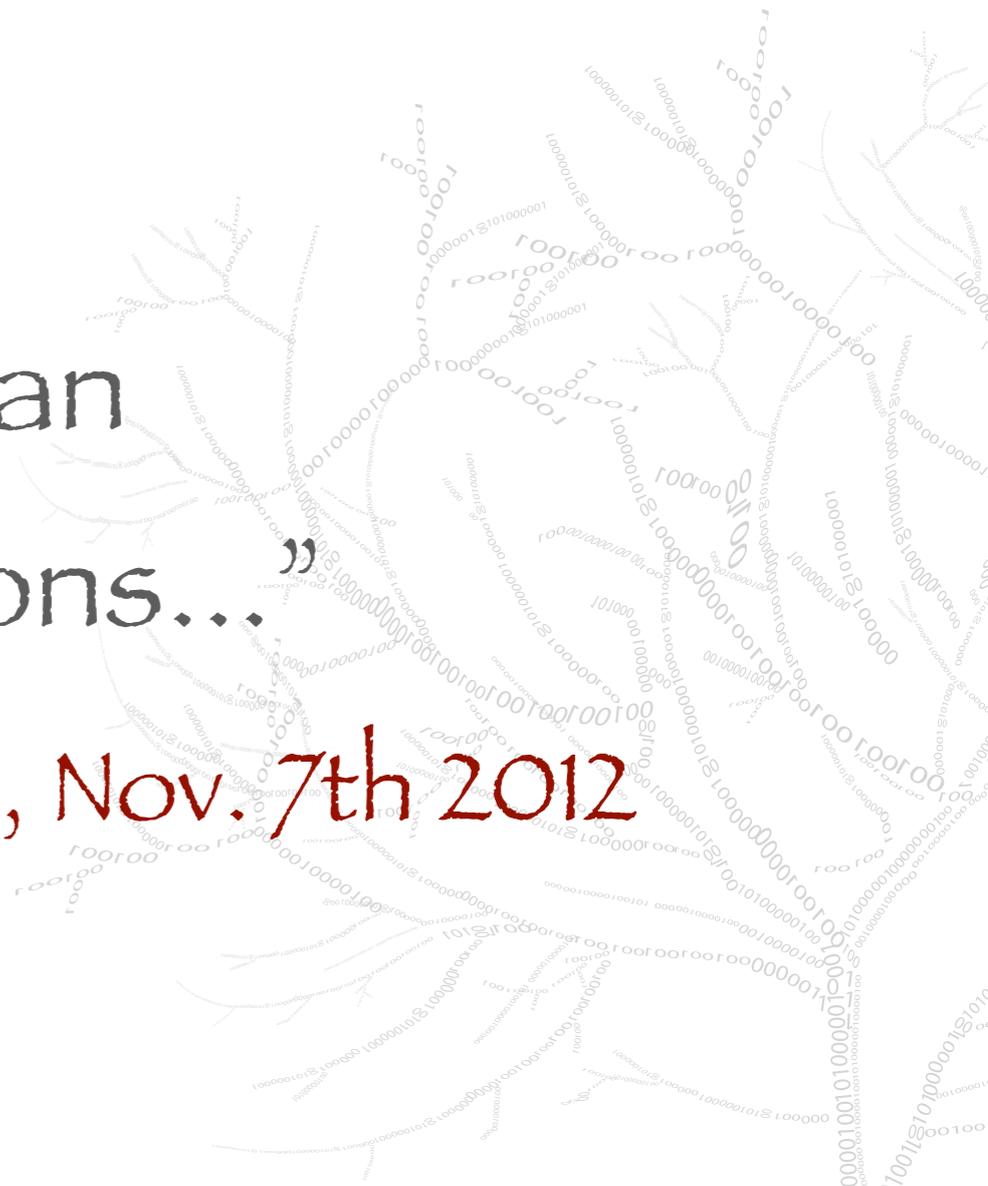
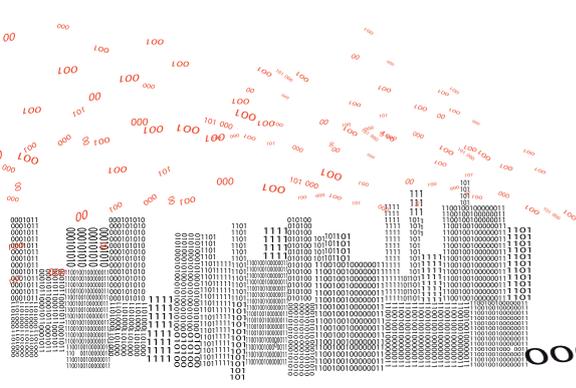


SAPIENZA
UNIVERSITÀ DI ROMA



“We are greater than
the sum of our ambitions...”

B. Obama, Nov. 7th 2012



Complex systems

The whole is greater than the
sum of its parts

- No “master-mind”
- Self-organization
- Evolution/adaptation
- Emergence

Bio / Techno / Social

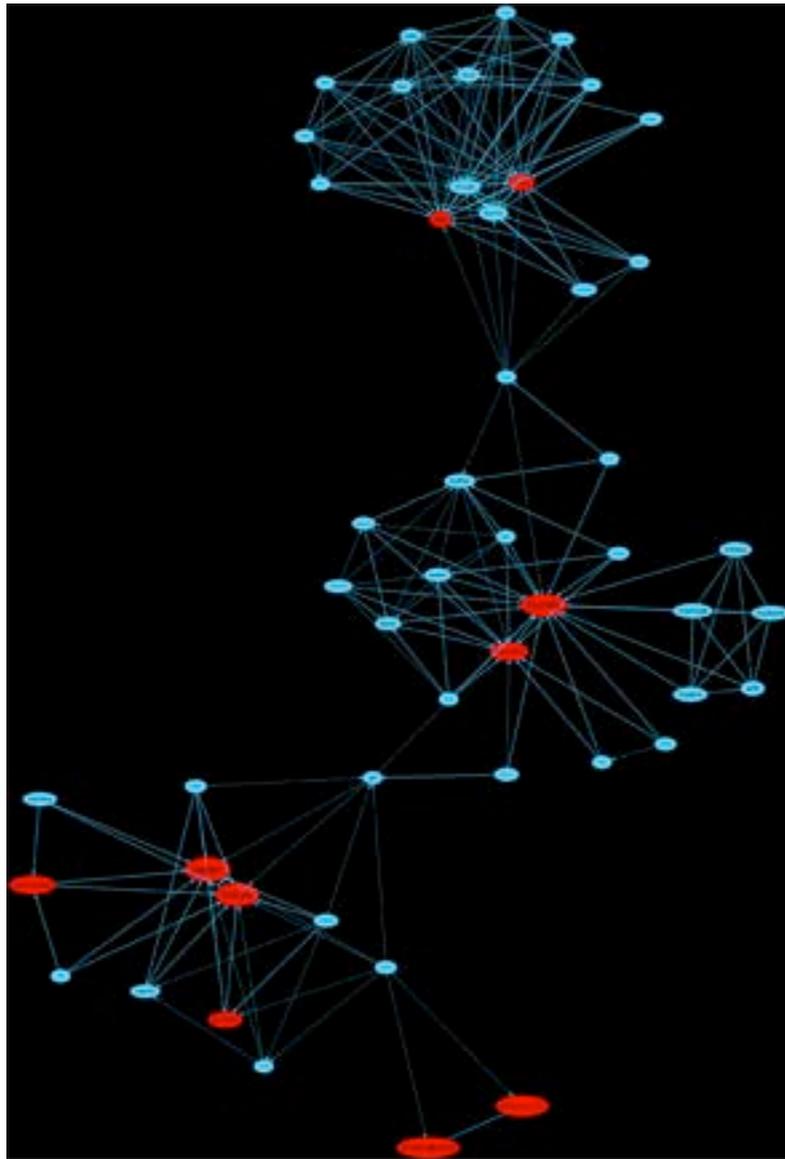


Who needs traffic lights?

complexity in social systems



the complexity of techno-social systems



user level

cognitive,
behavioural



community
level

social,
interactive



infrastructure
level

ICT, networks,
physical-digital

New ICT-driven opportunities

Understand and predict complex societies

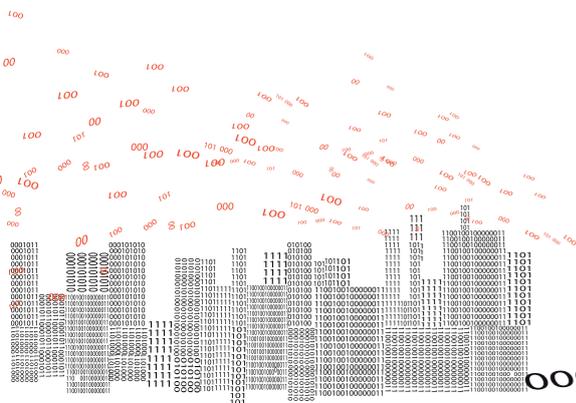
- face societal challenges
- data-driven modeling schemes
- information, culture, opinion dynamics
- epidemic spreading
- ...

Web as a laboratory for social sciences

- opinions formation
- consumers behaviors, marketing strategies
- cultural trends, globalization
- birth and evolution of communication systems
- language evolution
- ...

Raise awareness and participation

- Monitoring of common resources and environment
- Monitoring of societies
- Feedback to policy makers
- Sustainable development
- ...



Social computation

Populations of users facing collectively **difficult problems** using a small cognitive overhead



<http://www.espgame.org/>



WIKIPEDIA



The images shown during the game
may be subject to copyright.

The ESP Game



Ready!

Click to start the game

A new platform for web-based experiments

BETA

experimental tribe

is a web platform for gaming and social computation. It helps researchers to realize web games/experiments and it let people join, while enjoying, the scientific research.

Log out vittorio My account

Home Experiments Development About Credits

X-Tribe launch at the 2nd London Citizen Cyberscience Summit

Submitted by admin on Mon, 2012-02-13 17:49

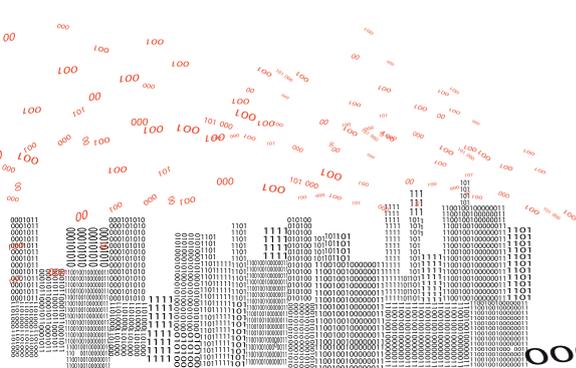
Finally, the beginning. The X-Tribe platform will be presented at the 2nd London Citizen Cyberscience Summit by the Citizen Cyberscience Center.

After the success of the first edition, the summit will take again place in London from 16 to 18 February 2012, with a very rich programme that will touch many different aspects of the citizen science: people engagement, pollution monitoring, case studies and many others.

And we will be there too, for the first official presentation of the X-Tribe project.

[Read more](#)

<http://www.xtribe.eu/>

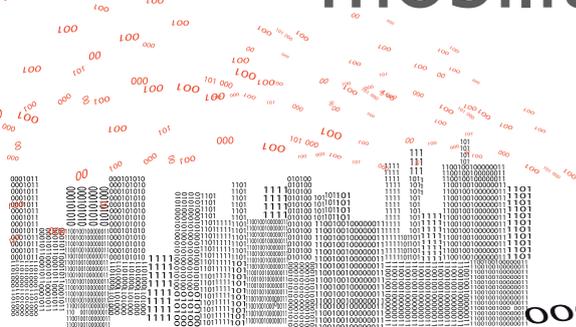




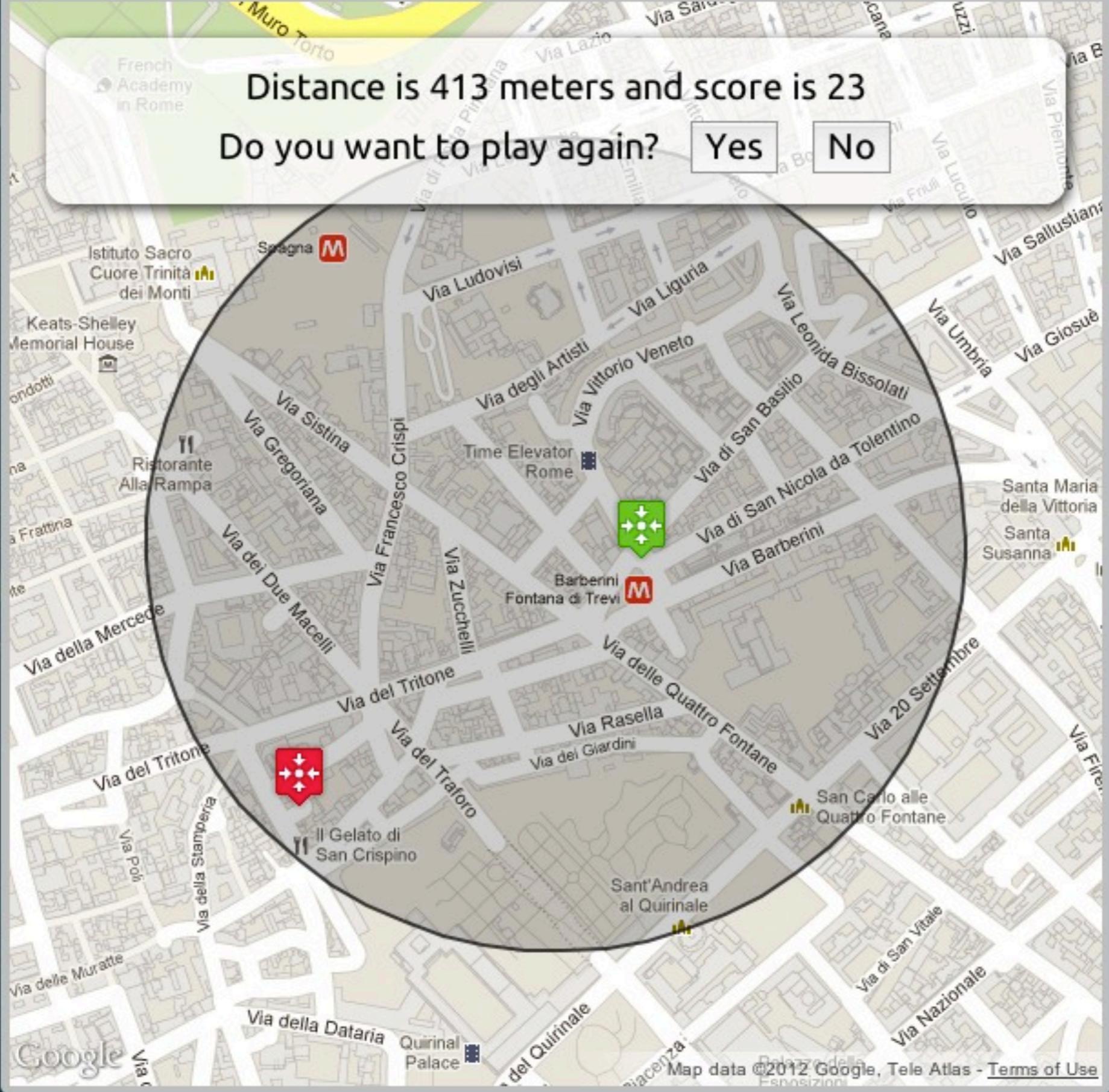
• it will allow virtually any researcher to realize his own experiment with minimal effort, paving the way of the use of the web as a standard **“laboratory”** for social sciences.

• it can be a strong **“basin of attraction”** for people willing to participate to experiments, making in this way **recruitment** much easier than for single-experiment platforms.

• **research areas:** opinion and language dynamics, decision making, game-theory, geography, human mobility, economics, psychology, etc...



Distance is 413 meters and score is 23
Do you want to play again?



Blindate

Coordination game (Schelling's focal points)





Joe's City Race Solo

Exploit additional traffic information to defeat Google in finding a route between two points in your city.

Join!

More info

Optimal route in a city

Word-association



Nexicon Duo (English version)

Can you guess which word a possibly unknown person will associate to a given word?

Join!

More info



laPENSOcosì

laPENSOcosì permette di esprimere la propria opinione su coalizioni, partiti e singoli candidati alle prossime consultazioni elettorali.

www.lapensocosi.it/

Join!

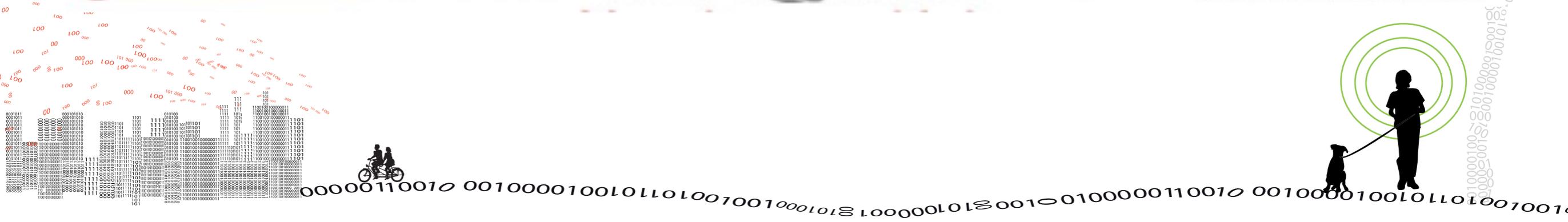
More info

Negative vote in elections



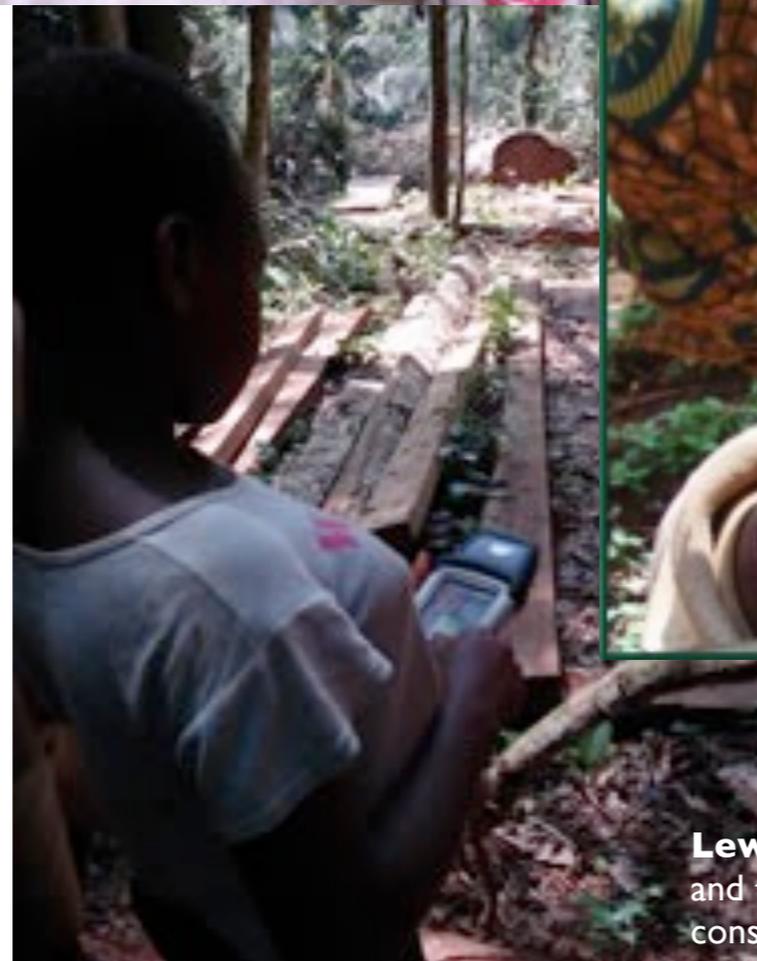
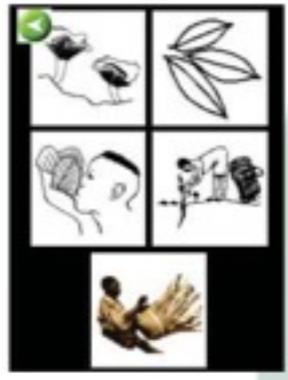
Citizen Science

...individual volunteers or networks of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks such as observation, measurement or computation.



GPS helps Pygmies to defend their forest

J. Lewis (UCL)



Lewis
and the
conse

*"Tell me, I forget.
Show me, I remember.
Involve me, I understand."*
Chinese proverb

Participatory sensing

objective/subjective monitoring

interaction with
policy makers

enhanced
awareness /
learning

behavioural changes

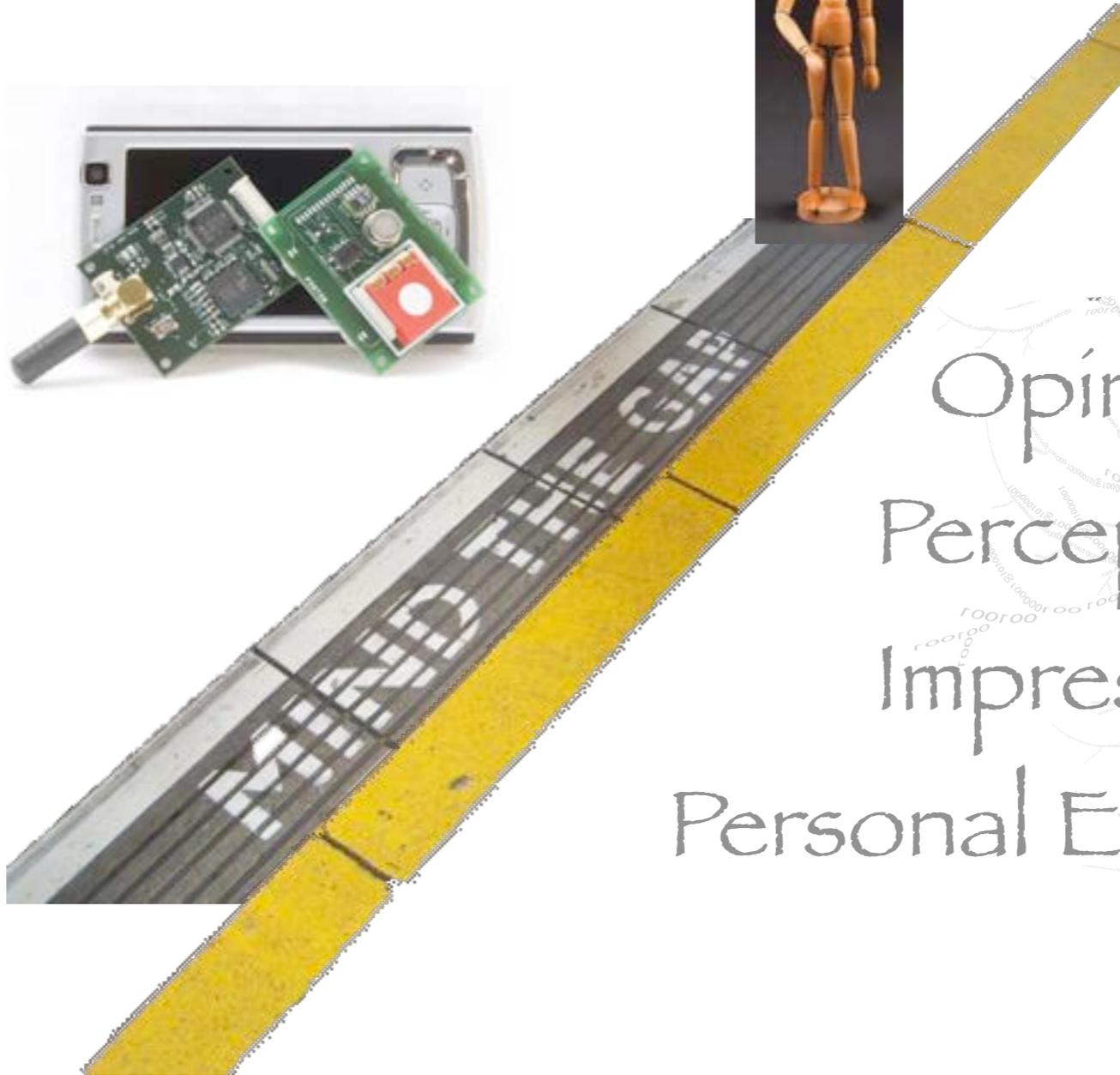
new ICT tools



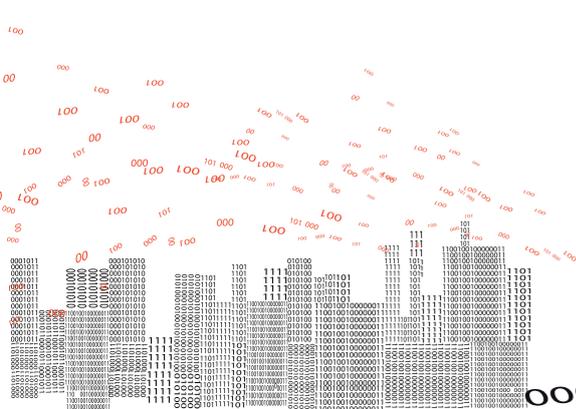
Turn citizens into sensors

Objective vs. Subjective monitoring

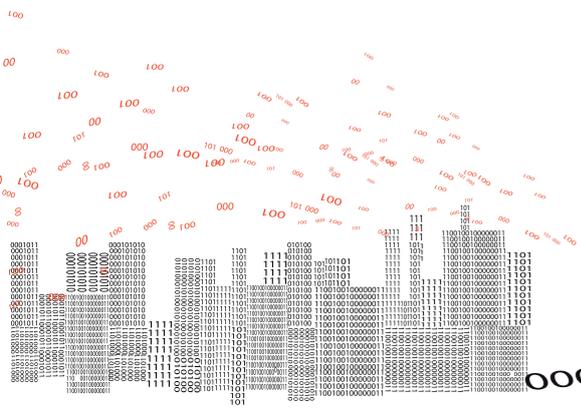
Measured
Quantities



Opinions
Perceptions
Impressions
Personal Experiences



The EveryAware platform





Objective data

Subjective data

- Tags
- Annotation
- Votes
- Comments

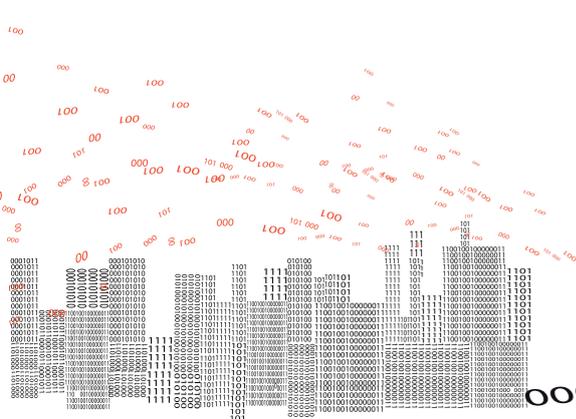
Sensor box



Server



- GPS, accelerometers
- Temperature, humidity
- Noise
- Air quality (NOx, Ozone, CO, ...)
- (e.m sensors, geiger)



Case studies

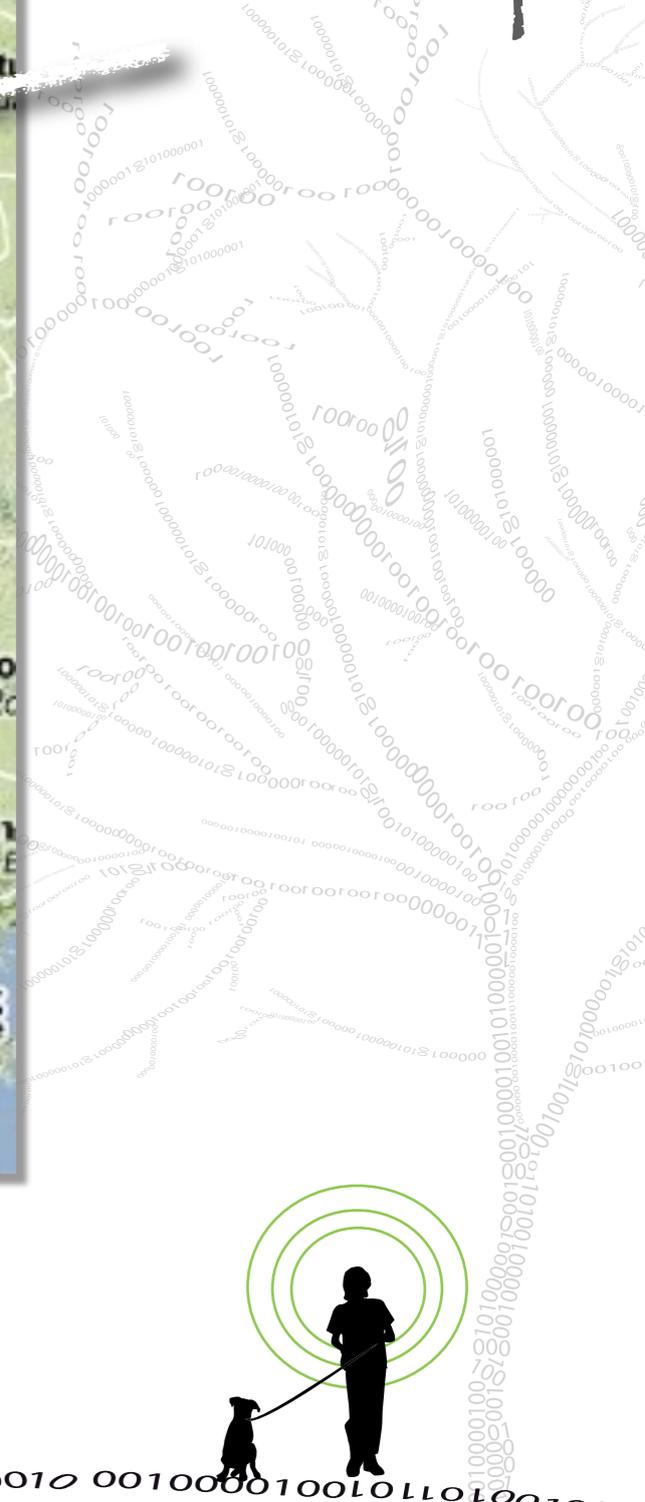
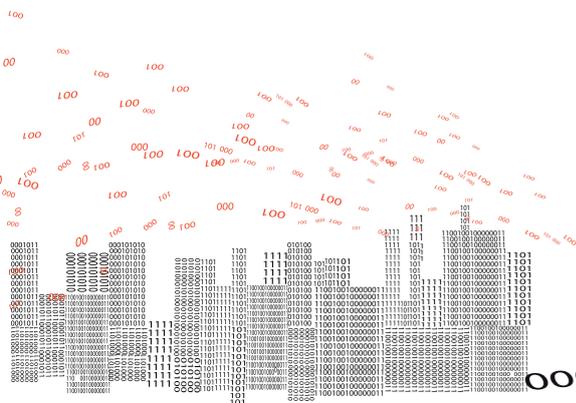
London



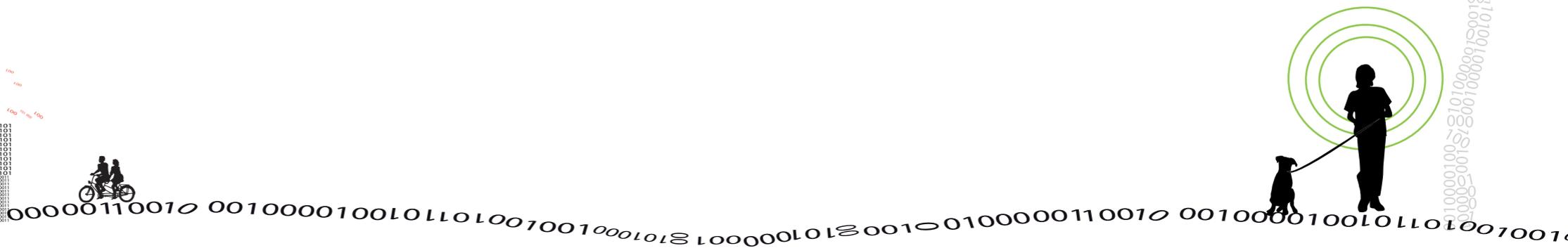
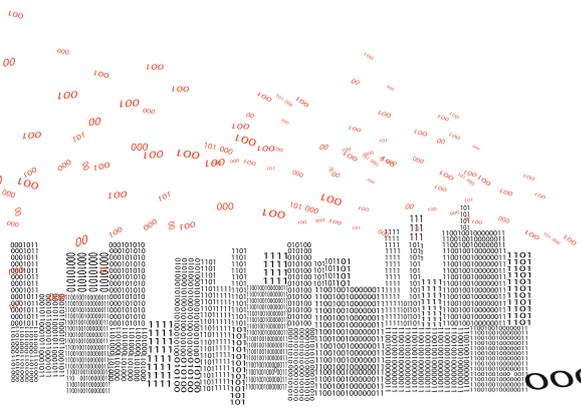
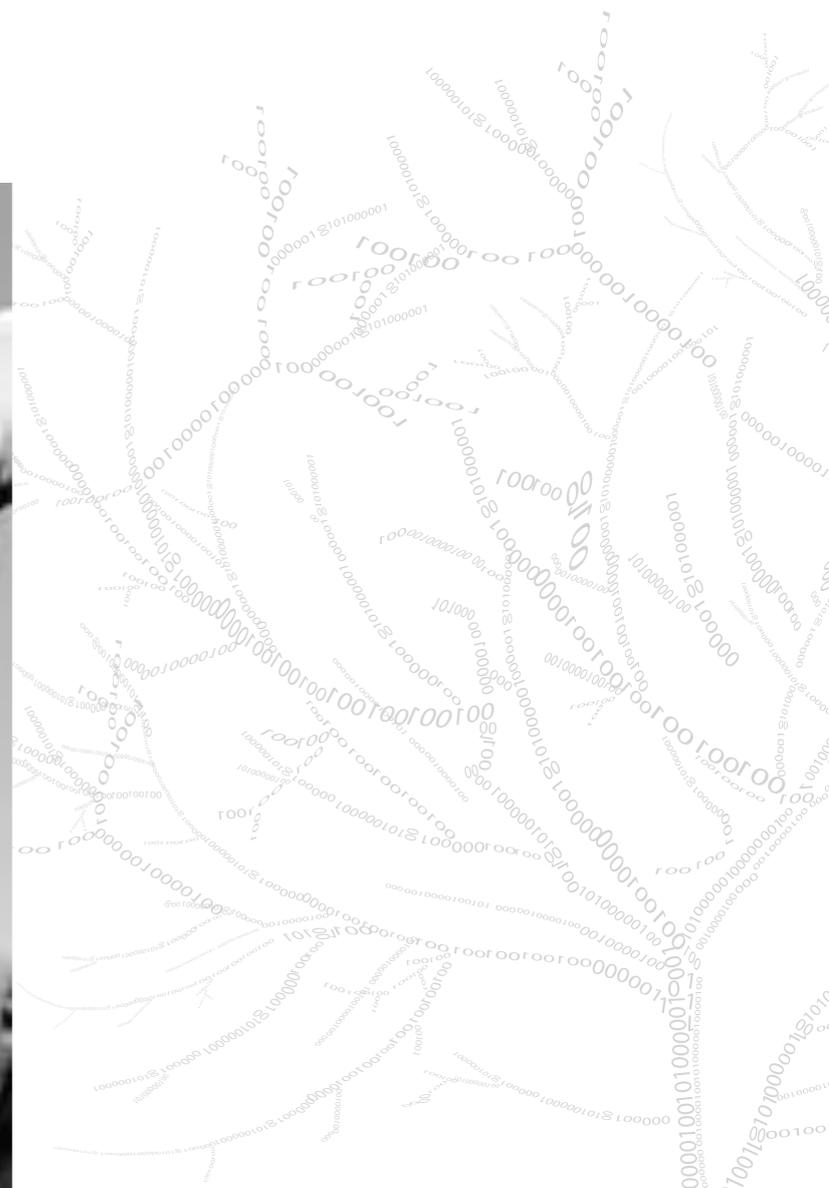
Antwerp

Turin

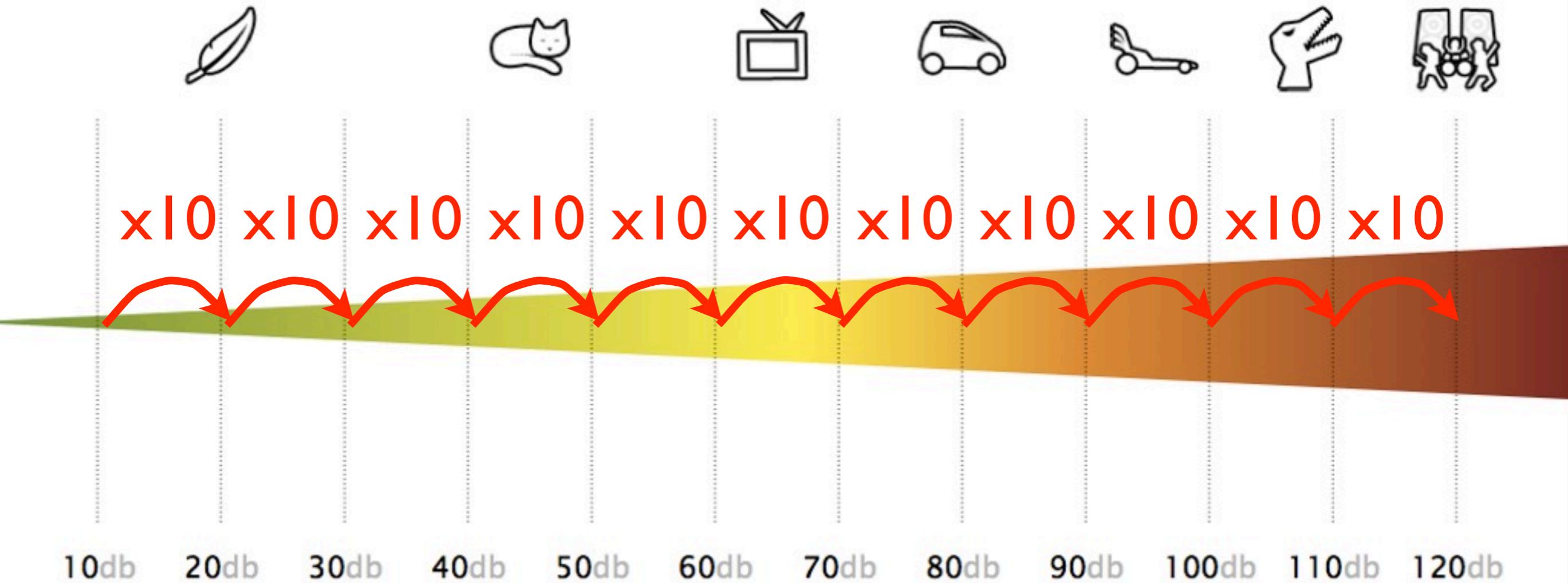
Rome



Noise pollution



Each sound level is represented as a symbolic noise emitter:



$$dB = 10 \times \log \left(\frac{I}{I_0} \right) \quad I_0 = 10^{-12} \frac{Watt}{m^2}$$



WideNoise, the iPhone & Android app that helps you understand the soundscape around you.

There are various kind of pollution that get often on the first page of newspapers. Noise pollution instead is rarely cited, but it's something that constantly surrounds us even if we are not aware of. WideNoise will help you to better understand the soundscape around you & live a healthier life.



Get WideNoise
for iPhone



Get WideNoise
for Android

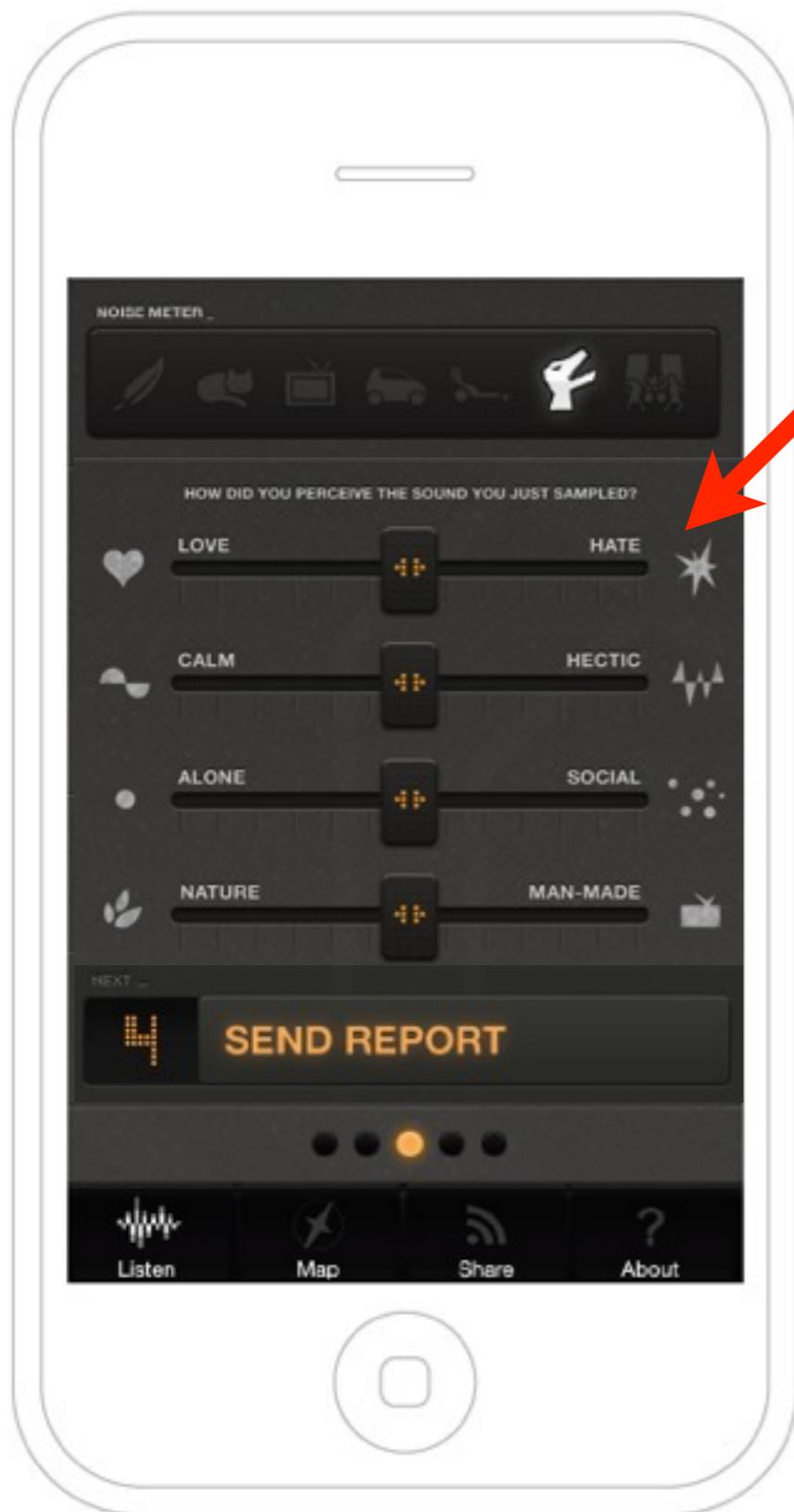


<http://cs.everyaware.eu/event/widenoise>

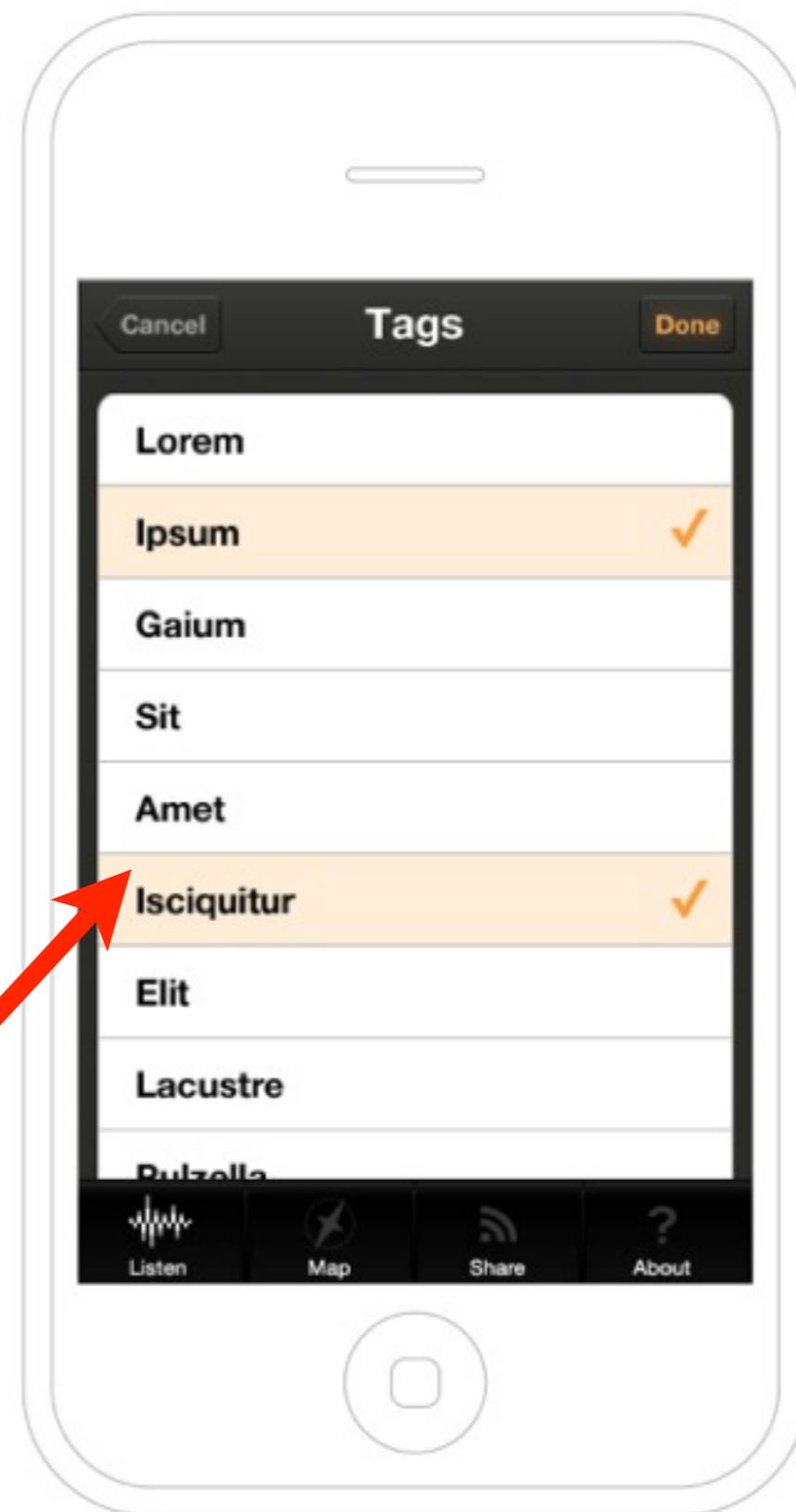
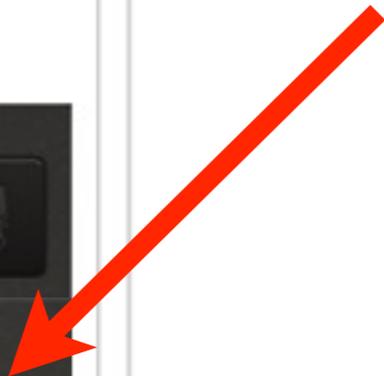
Objective measurements



Subjective measurements

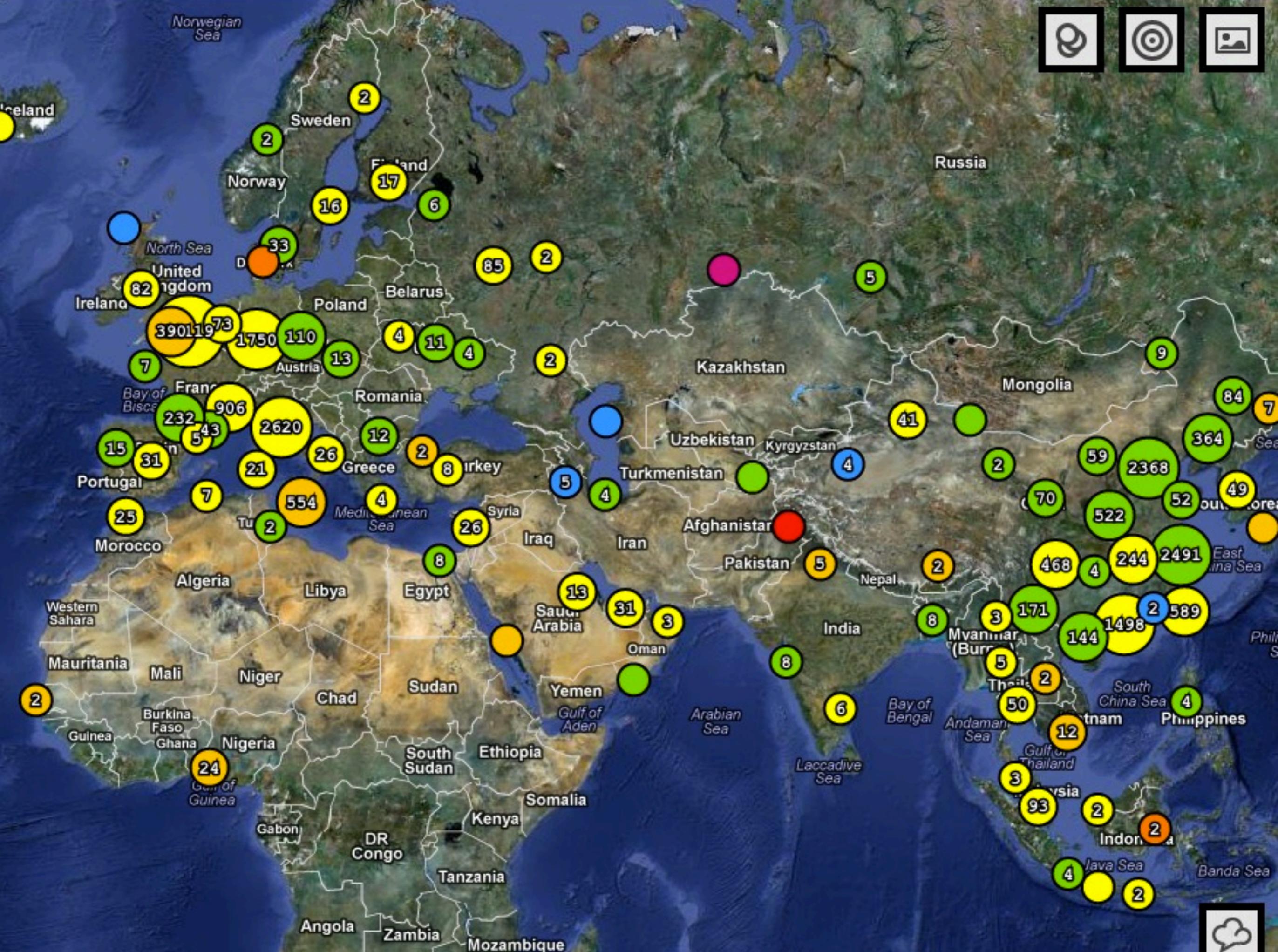


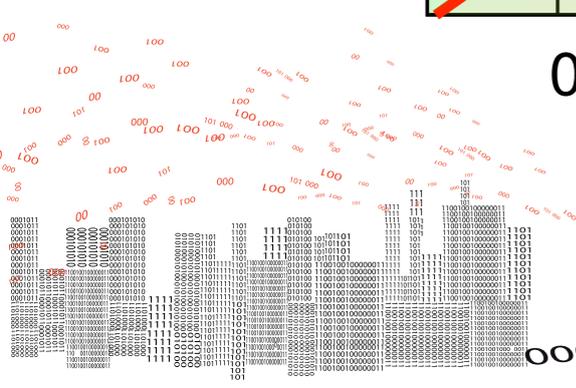
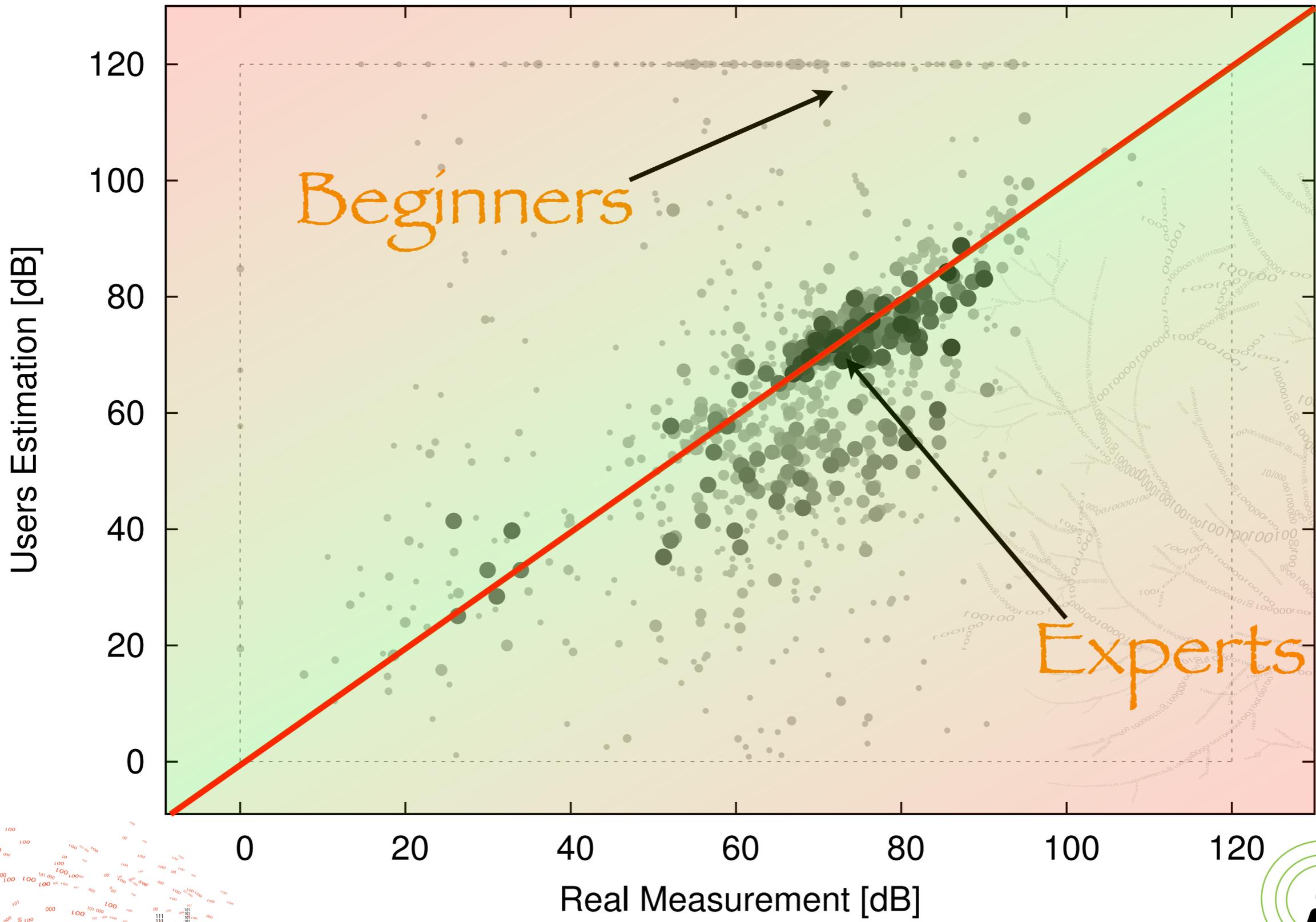
Sliders



Tags

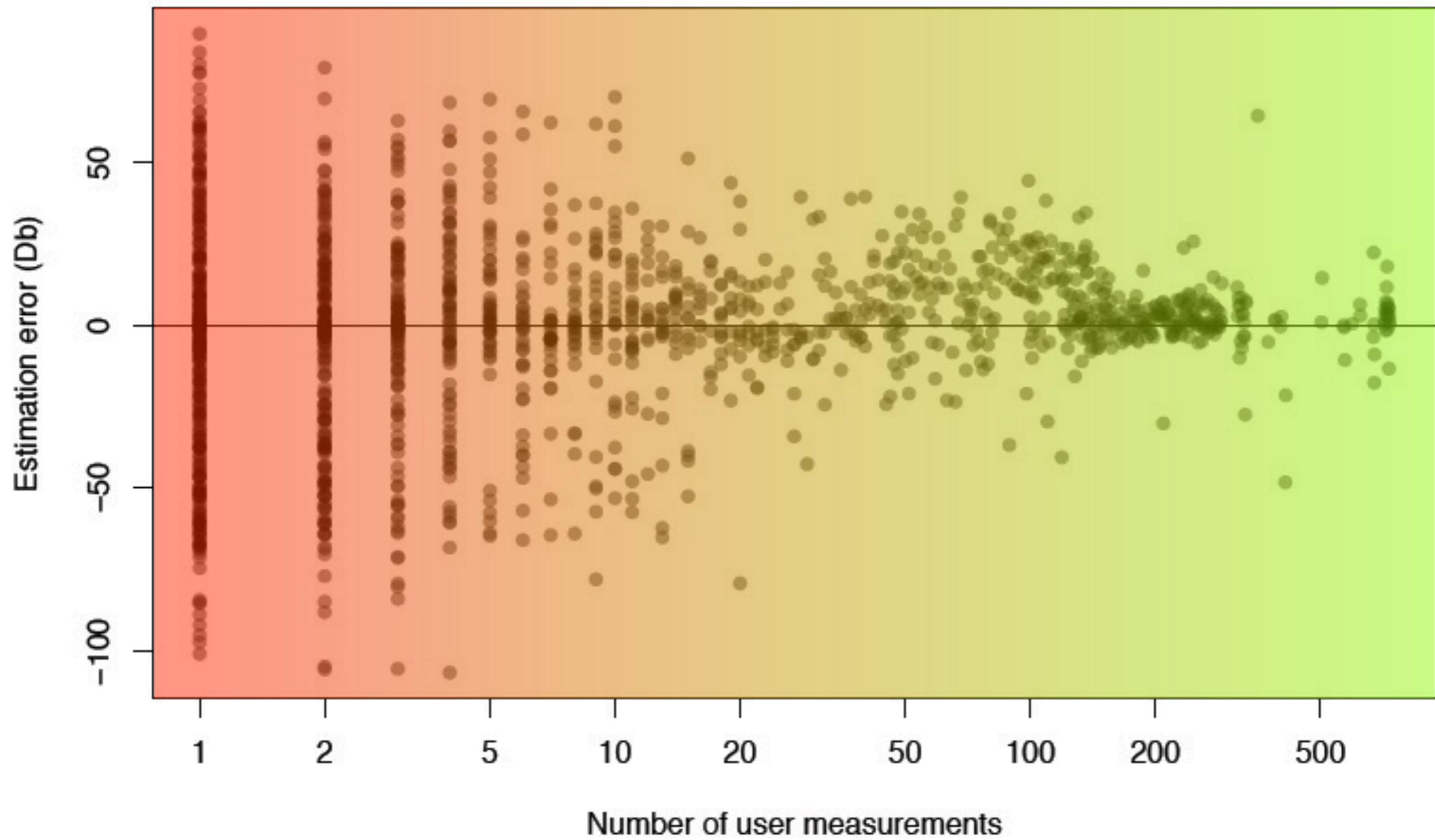






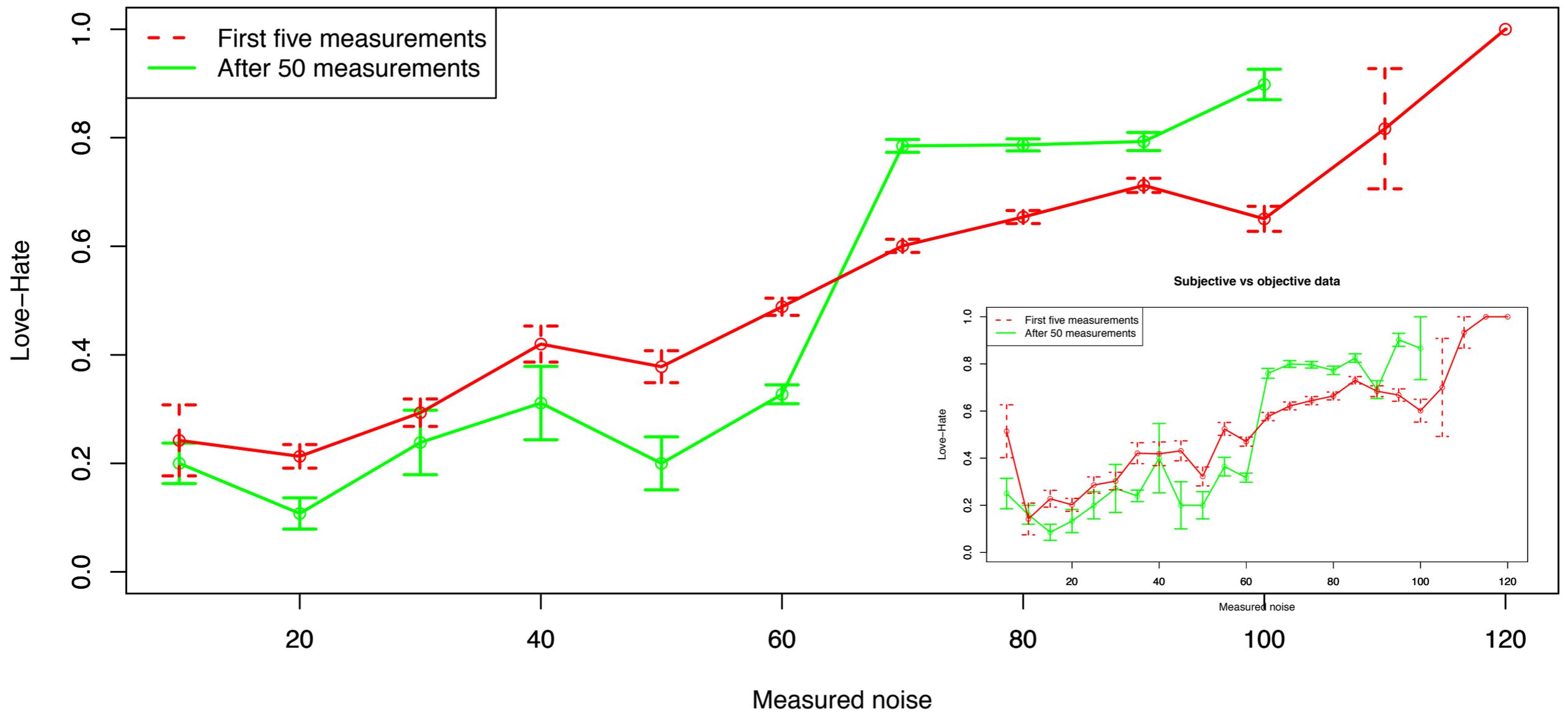
Prediction accuracy

Estimation errors vs user expertise



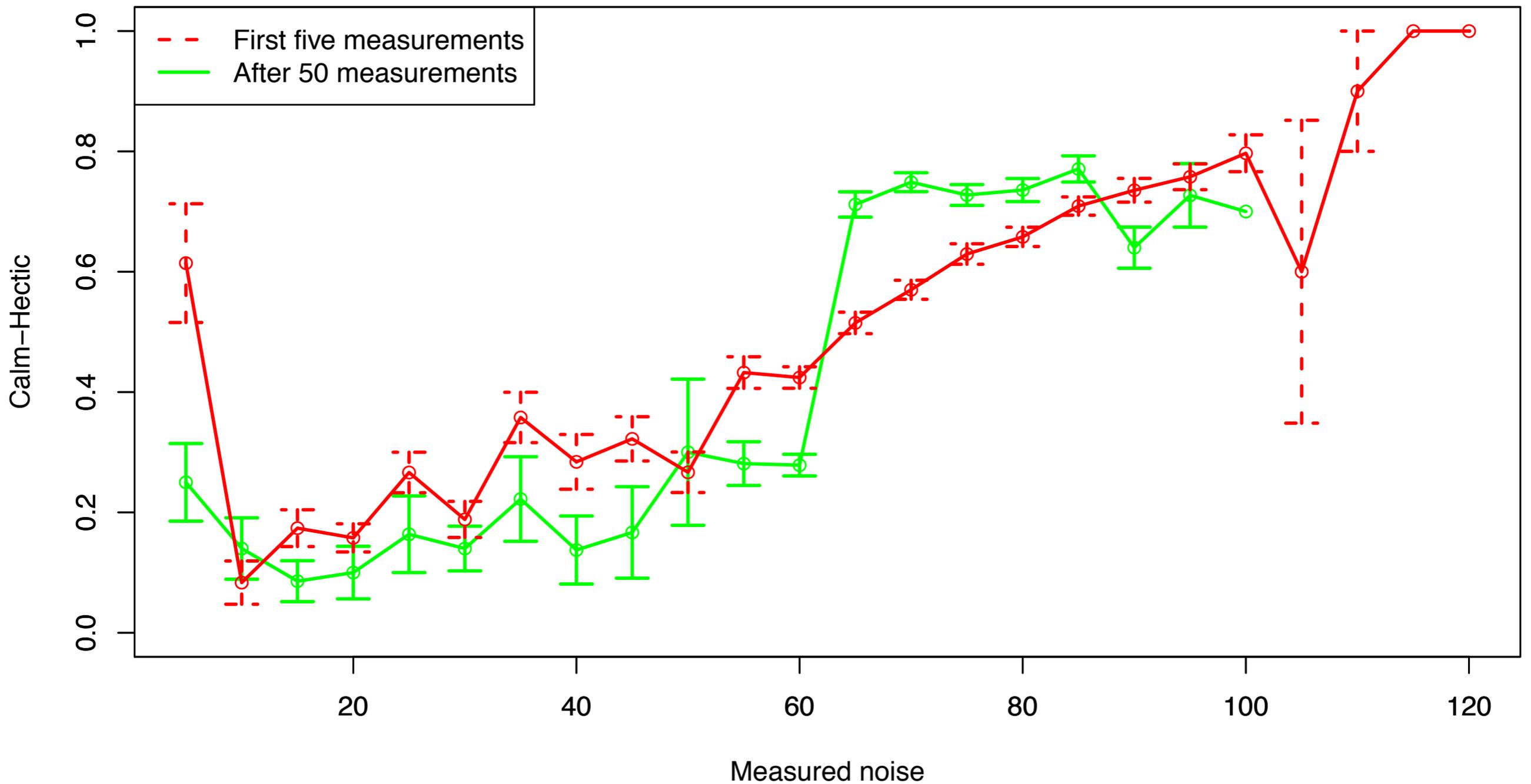
Sharpening individuals' perception

Subjective vs objective data

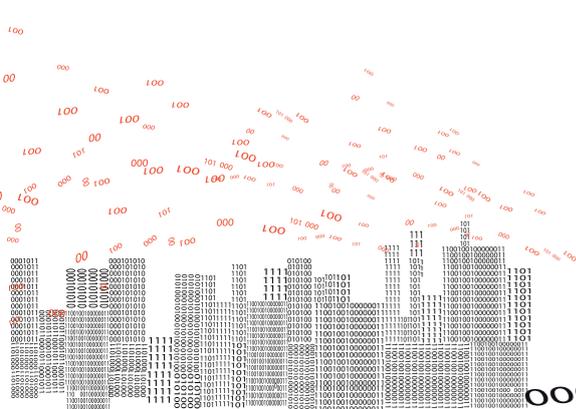


Sharpening individuals' perception

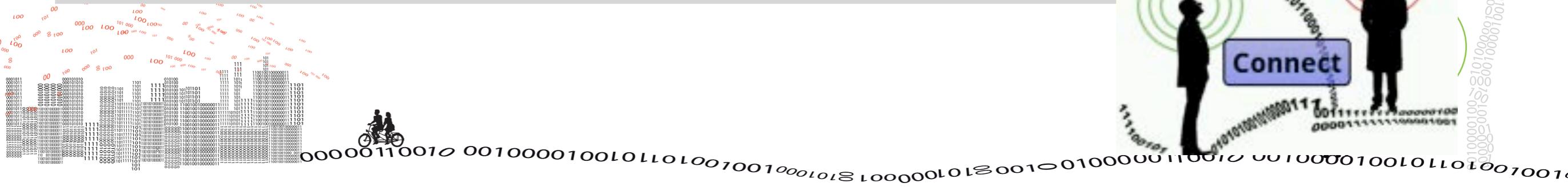
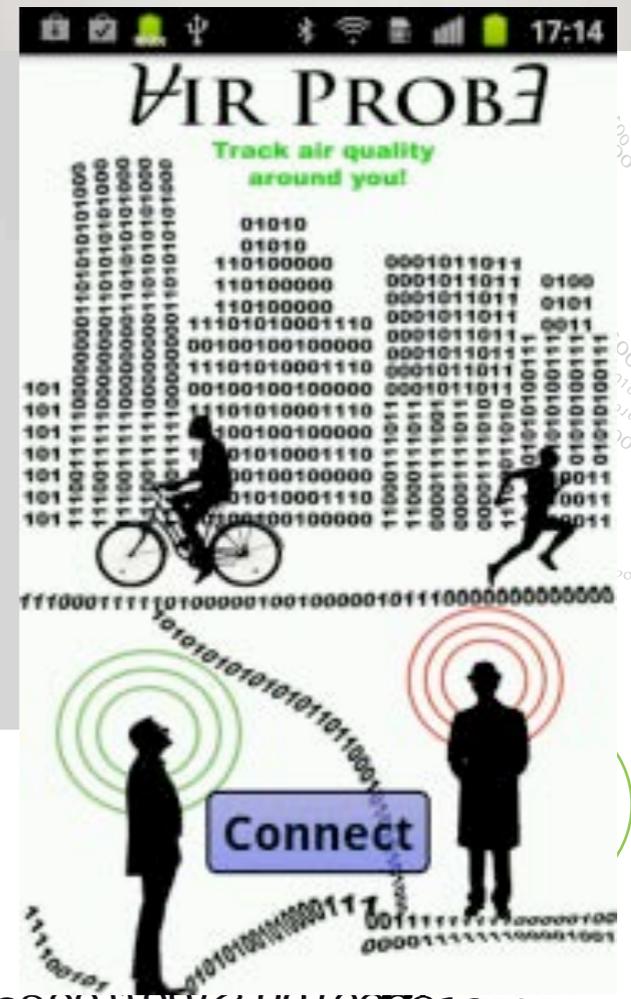
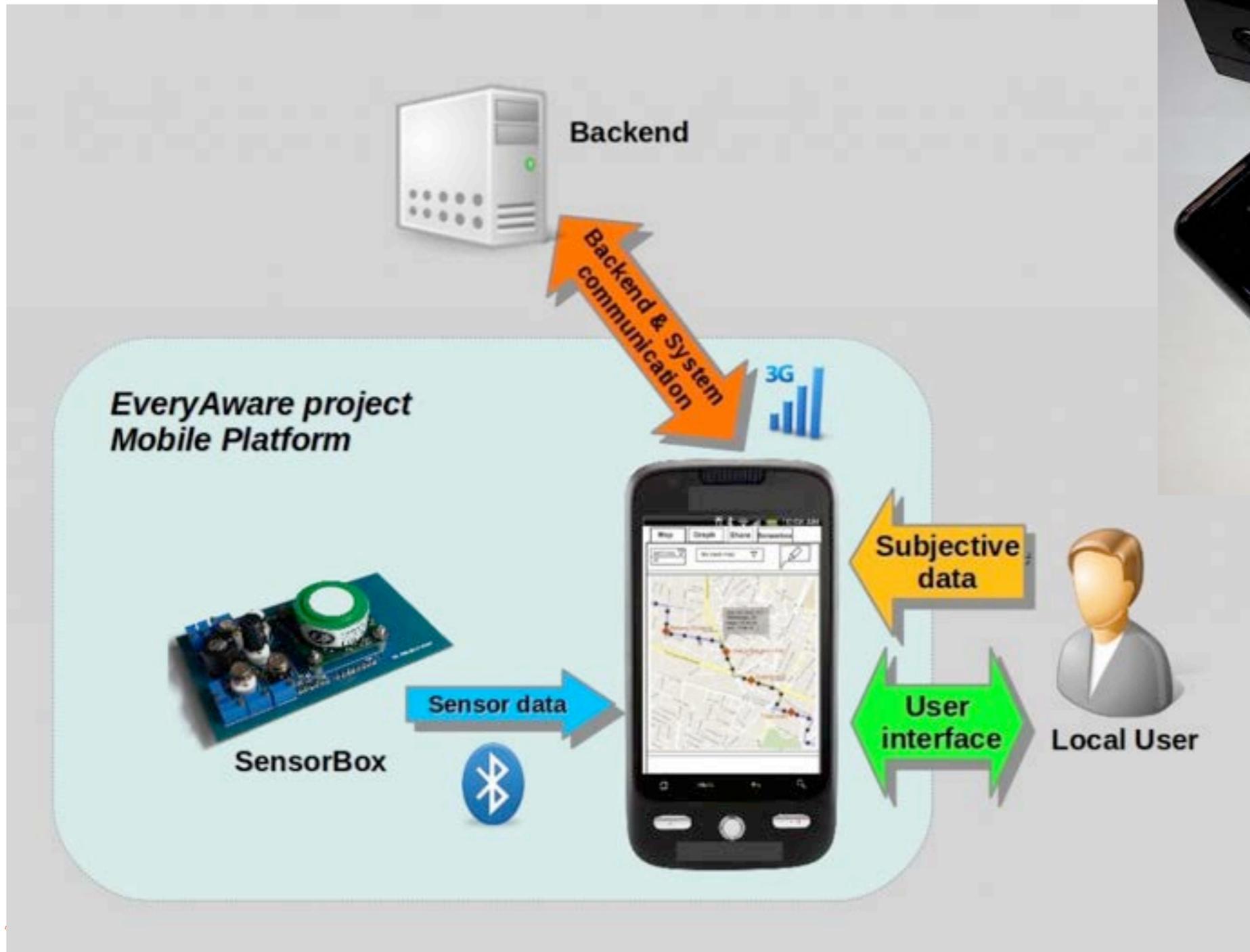
Subjective vs objective data



Air-quality



Air-quality

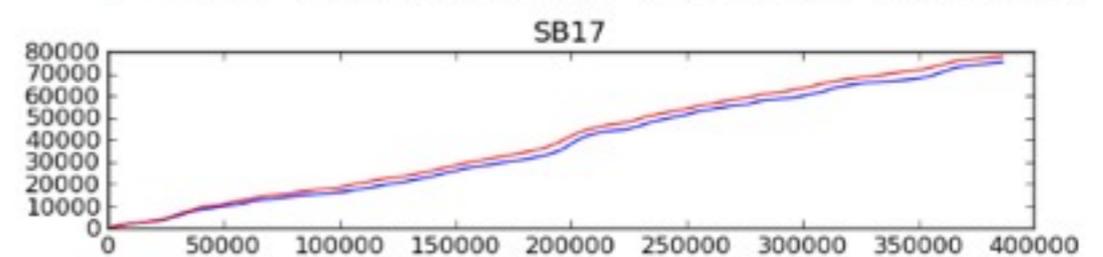
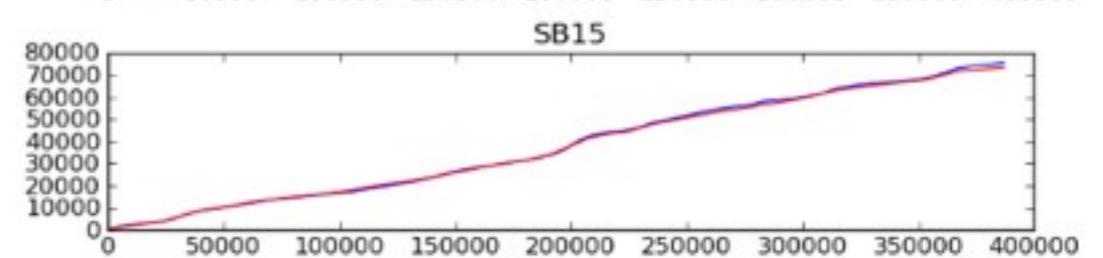
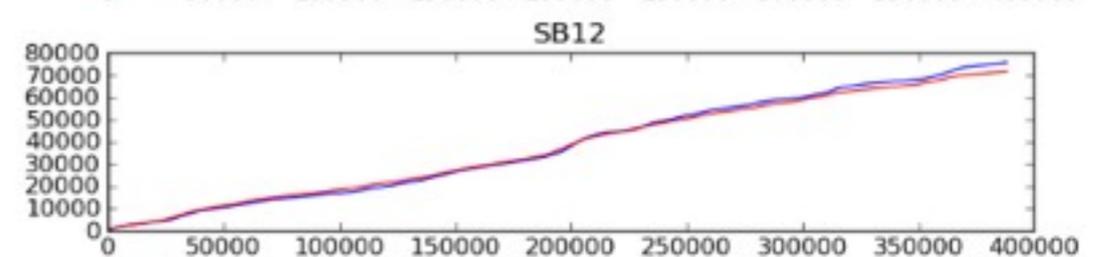
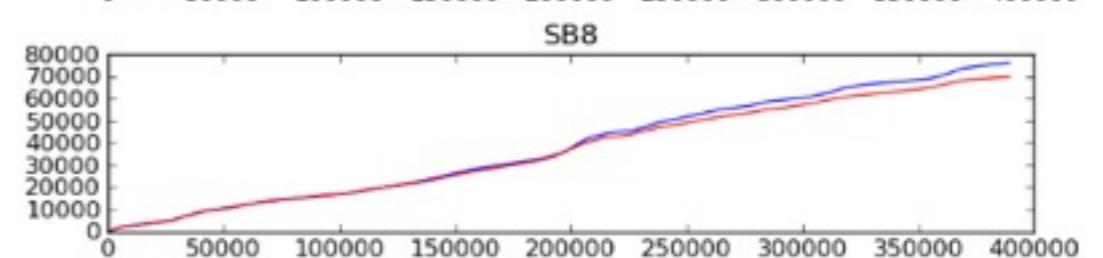
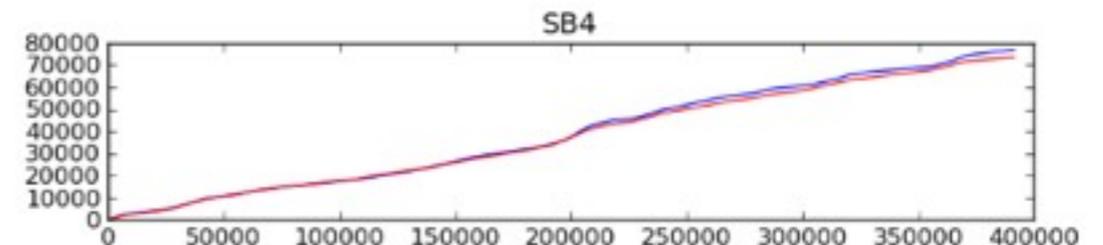
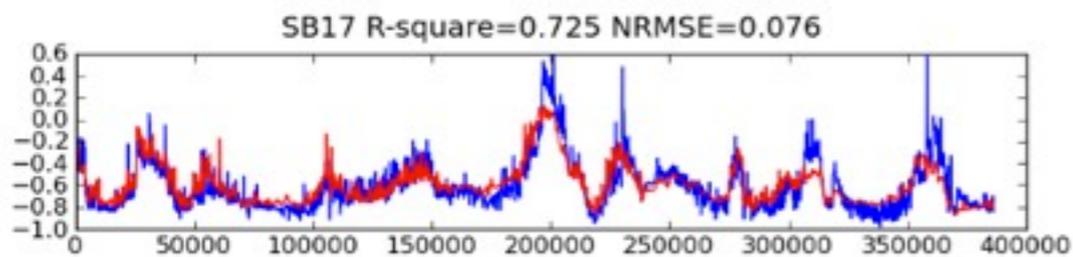
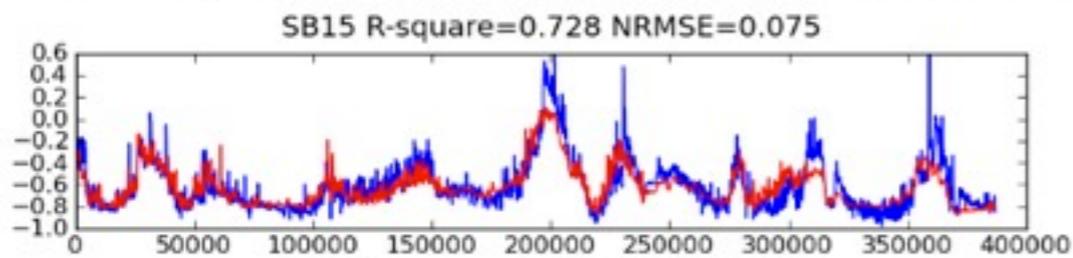
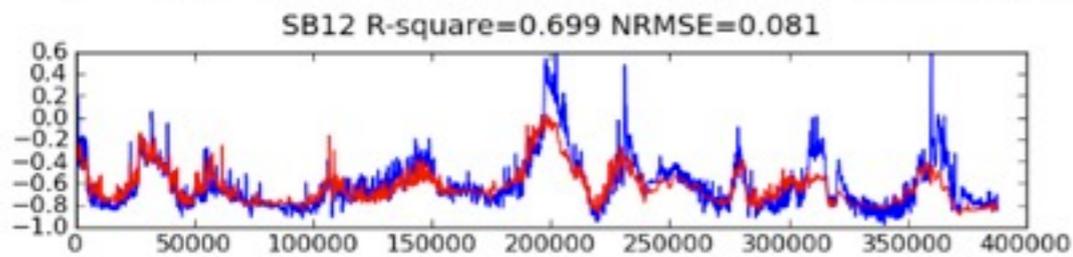
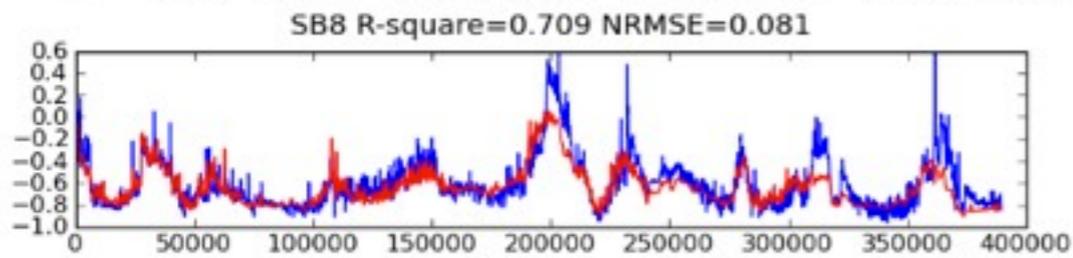
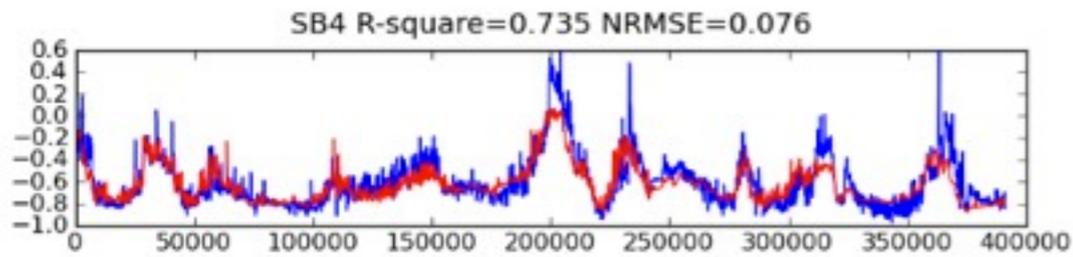




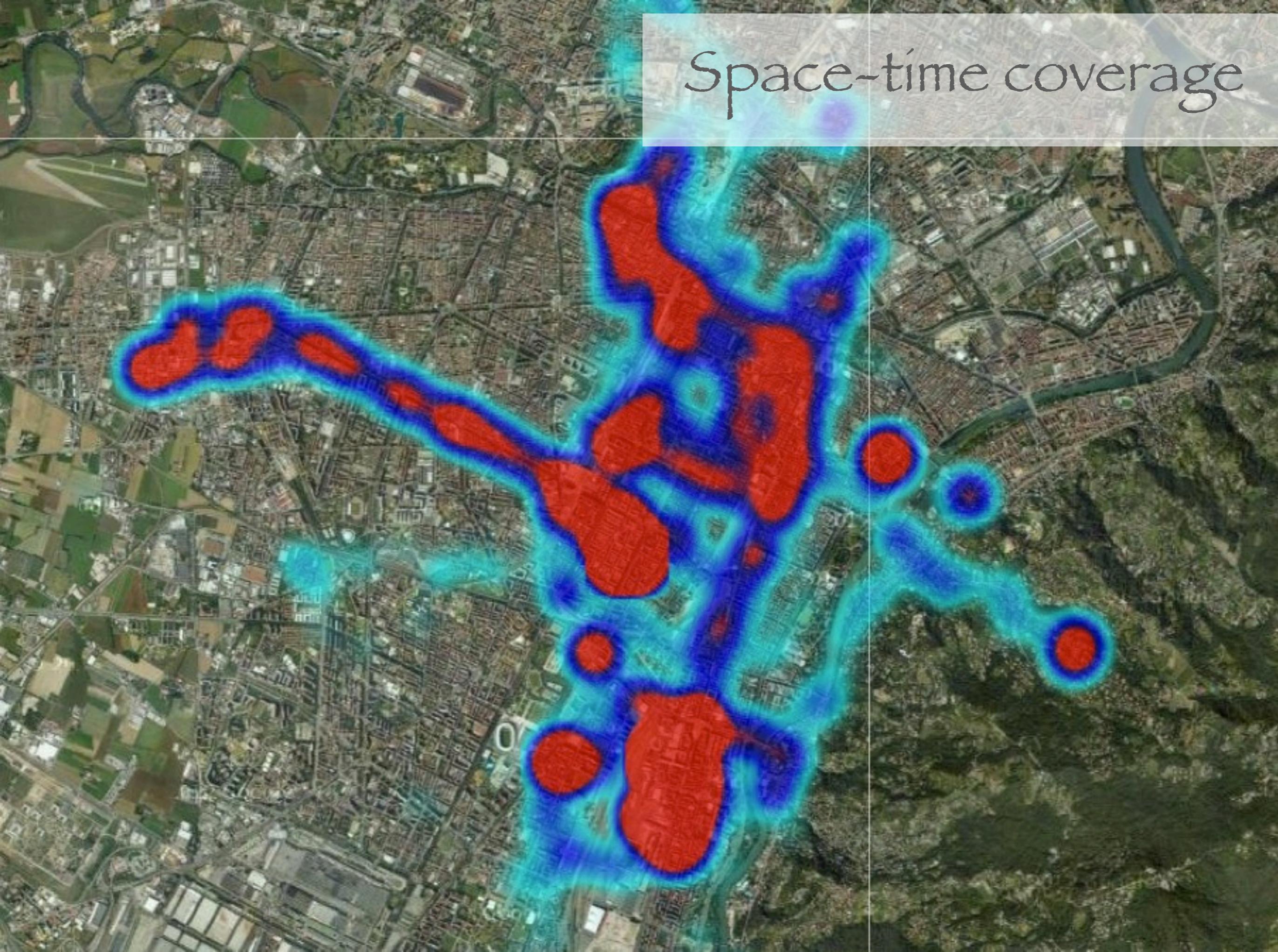
Calibration vs. Black-Carbon

Air-Quality Index (AQI)

Cumulative exposuere



Space-time coverage



Awareness and behavioural change

(a long way to go)

Awareness vs. learning

Awareness vs. different social strategies

what individual would make different in specific tasks? (stimulated response)

Awareness vs. behavioural changes

what individual would make different in their everyday life? (spontaneous response)

EveryAware international challenge

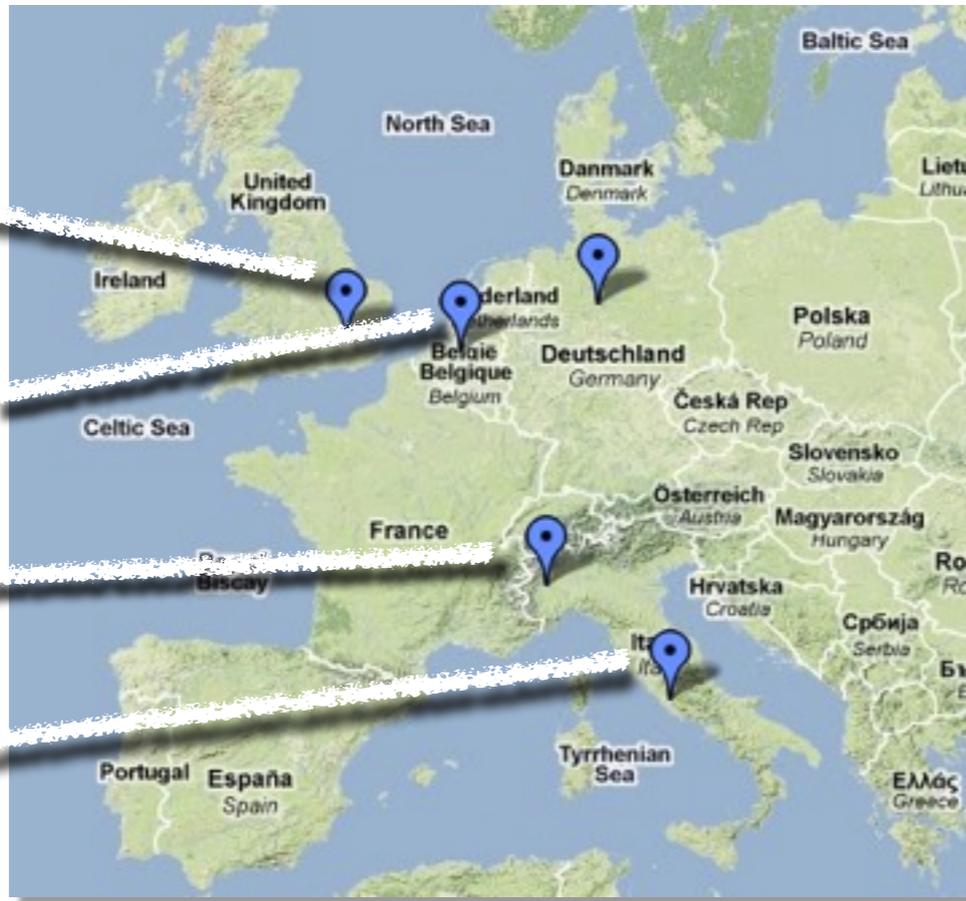
October 2013

London

Brussels

Turin

Rome



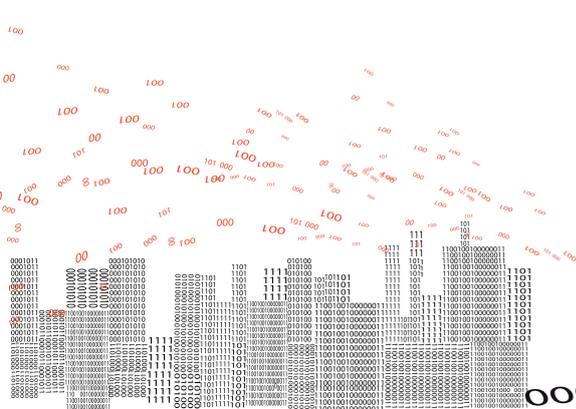
1. Betting on the pollution:

Coordination online game on the XTribe platform aimed at revealing polluted and clean spots.

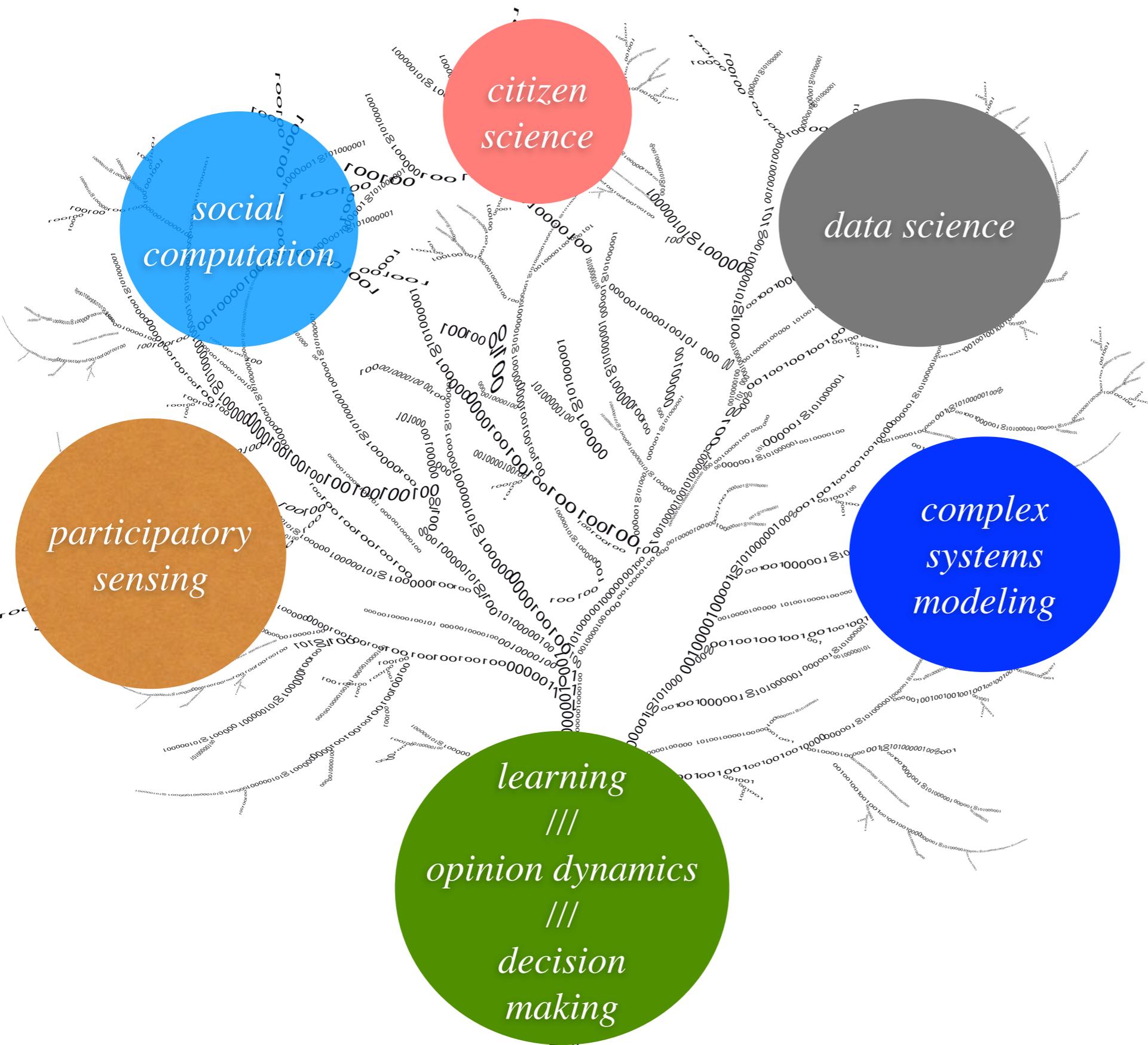
2. Real measurements: 10 ambassadors per city will be equipped with sensor-boxes to monitor real air pollution. The measurements will be published in real-time.

3. Measuring behavioural shifts: people will be asked to play again in order to see if the knowledge obtained from real measurements changed their perception.

Stay tuned on www.everyaware.eu !!



Summary



how awareness emerges
and what affects it ?

what triggers large-scale
behavioural shifts
(incentives)?

how do we model and
make sense of all this ?

how do we devise
new platforms for social
actions ?



Thank you

<http://www.xtribe.eu/>
<http://www.everyaware.eu/>

